

Scanning Electron Micrographic Study of the Dorsal Integument of the Land Slug *Lehmannia poirieri* (Mabille, 1883)

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THE HISTOLOGY OF THE integumentary structures of the slug, *Lehmannia poirieri* (Mabille, 1883), and the snail, *Helix* sp., has been studied by several observers (ARCADI, 1963; CAMPION, 1961; ZILL, 1924).

The surface of the integument has not been previously studied in detail, particularly with the scanning electron microscope. It is our purpose to present such a study of the slug integument. Specimens were obtained in Whittier, California, in February and March, 1970. The slugs were fixed by plunging them into 4% glutaraldehyde buffered to pH 6.8 and cooled to 0° C. Other specimens were freeze substituted according to a modified technique of FEDER & SIDMAN (1958), using isopentane cooled with liquid nitrogen to -155° C.

The dorsal integument was excised, mounted on a stub and shadowed with a gold-palladium alloy. The tissue

was then viewed under 1×10^{-5} Torr in a Cambridge "Stereoscan" Mark D2 scanning microscope.

The orifices of what we presume to be mucous glands are visualized with mucus exuding from them (Figure 1). Slightly smaller orifices were noted in a lattice-like arrangement (Figure 2). Around a large orifice (Figure 3) are seen slight roughening or projections that may be the microvilli seen with the transmission electron microscope noted in an unpublished work by Arcadi. Smooth smaller orifices are also seen (Figure 4). Under low power, peculiar ridges (Figure 5) are seen, the significance of which is not known at present.

This then is the first known presentation of scanning electron microscope studies of the dorsal integument of the slug showing openings of mucus-producing gland cells.

Explanation of Figures 1 to 3

Figure 1: Three stomata with a stoma open and a small amount of mucus exuding from an orifice. Note the protuberances that may well be so-called microvilli. ca. $\times 200$

Figure 2: Lattice-like arrangement of orifices of mucous cell glands. ca. $\times 100$

Figure 3: A large mucous gland orifice exuding its secretion with the smaller ridge segments of microvilli. ca. $\times 10000$

Explanation of Figures 4, 5

Figure 4: Smaller orifice with many adjacent structures which appear to be villi similar to those in Figure 1. Further studies will reveal the nature of these structures. $\times 100$

Figure 5: Peculiar ridges seen in the dorsal integument of the slug are shown under low power magnification. They are seen consistently and therefore we consider them a physiological expression of the integument. $\times 200$



Figure 1



Figure 2



Figure 3